# MultiModem® GPRS & CDMA
External Wireless Modems

**MTCBA-G-F1**
**MTCBA-G-F2**
**MTCBA-C**

# Quick Start Guide

MultiTech® Systems

MultiModem GPRS, MultiModem CDMA Series Quick Start Guide
PN: 82001225L Rev. F
Copyright ©2006 by Multi-Tech Systems, Inc.

All rights reserved. This publication may not be reproduced, in whole or in part, without prior written permission from Multi-Tech Systems, Inc.

Multi-Tech Systems, Inc. makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. Furthermore, Multi-Tech Systems, Inc. reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of Multi-Tech Systems, Inc. to notify any person or organization of such revisions or changes.

| Revision | Date | Description |
|---|---|---|
| D | 12/30/04 | Revise contents list & power drawing.<br>Add serial cable drawings. |
| E | 01/07/05 | Added instructions for hazardous locations. |
| F | 05/01/06 | Add replacement fuse info. |

### Trademarks

MultiModem, Multi-Tech, and the Multi-Tech logo are trademarks of Multi-Tech Systems, Inc. All other brand and product names mentioned in this publication are trademarks or registered trademarks of their respective companies.

### Technical Support

| | | |
|---|---|---|
| France | support@multitech.fr | +33 1-64 6109 81 |
| India | support@multitechindia.com | +91 124 6340778 |
| U.K. | support@multitech.co.uk | +44 118 959 7774 |
| U.S., Canada | support@multitech.com | (800) 972-2439 |
| Rest of World | support@multitech.com | +763 717-5863 |

### World Headquarters

Multi-Tech Systems, Inc.
2205 Woodale Drive
Mounds View, Minnesota 55112 U.S.A.
(763) 785-3500 or (800) 328-9717
U.S. FAX (763) 785-9874
www.multitech.com

## Introduction

This guide shows you how to setup your Multi-Tech wireless MultiModem. For detailed information, product specification, troubleshooting tips, and warranty repair policies, see the User Guide, available on the MultiModem CD accompanying your wireless modem.

## General Safety

The modem is designed and intended to be used in either fixed or mobile applications. In the “Fixed” application, the device is physically secured at one location and not easily moved to another location. In the “Mobile” application, the device may be regularly moved to different locations.

***Caution!*** *Maintain a separation distance of at least 20 cm (8 inches) between the transmitter’s antenna and the body of the user or nearby persons. The Modem is not designed for, nor intended to be, used in applications within 20 cm (8 inches) of the body of the user. Such uses are strictly prohibited.*

Avoid possible radio frequency (RF) interference by carefully following the safety guidelines below.

- Switch OFF the MultiModem when in an aircraft. The use of cellular telephones in aircraft is illegal. It may endanger the operation of the aircraft and/or disrupt the cellular network. Failure to observe this instruction may lead to suspension or denial of cellular telephone services to the offender, legal action, or both.

- Switch OFF the MultiModem in the vicinity of gasoline or diesel-fuel pumps or before filling a vehicle with fuel.
- Switch OFF the MultiModem in hospitals and any other place where medical equipment may be in use.
- Respect restrictions on the use of radio equipment in fuel depots, chemical plants, or where blasting operations are in progress.
- There may be a hazard associated with the operation of your MultiModem in the vicinity of inadequately protected personal medical devices such as hearing aids and pacemakers. Consult the manufacturers of the medical device to determine if it is adequately protected.
- Operation of the MultiModem in the vicinity of other electronic equipment may cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturers' recommendations.

## Installation Instructions for Hazardous Locations

- The modems are open devices intended for installation in an ultimate enclosure suitable for the intended application.
- All wiring must be in accordance with wiring methods of Article 501.4B of the National Electrical Code, NFPA 70 or as specified in section 18-152 of the Canadian Electrical Code for installation within Canada and in accordance with the authority having jurisdiction.
- "WARNING - EXPLOSION HAZARD - Substitution of Components may Impair Suitability for Class I Division 2".

- "WARNING - EXPLOSION HAZARD - Do not Disconnect Equipment Unless Power has been switched off or the area is known to be Non - Hazardous".
- "WARNING - EXPLOSION HAZARD - Do not replace the Fuse Unless Power has been switched off or the area is known to be Non - Hazardous".
- "WARNING - Do not install or remove the SIM card Unless Power has been switched off or the area is known to be Non - Hazardous".

### Vehicle Safety

- Do not use your MultiModem while driving.
- Respect national regulations on the use of cellular telephones in vehicles. Road safety always comes first.
- If incorrectly installed in a vehicle, the operation of MultiModem telephone could interfere with the correct functioning of vehicle electronics. To avoid such problems, be sure that the installation has been performed by qualified personnel. Verification of the protection of vehicle electronics should be part of the installation.
- The use of an alert device to operate a vehicle's lights or horn on public roads is not permitted.

## Maintenance of the Wireless MultiModem

Your Wireless MultiModem is the product of advanced engineering, design and craftsmanship and should be treated with care. The suggestions below will help you to enjoy this product for many years.

- Do not expose the MultiModem to any extreme environment where the temperature or humidity is high.
- Do not attempt to disassemble the MultiModem. There are no user serviceable parts inside.
- Do not expose the MultiModem to water, rain or spilled beverages. It is not waterproof.
- Do not abuse your MultiModem by dropping, knocking, or violently shaking it. Rough handling can damage it.
- Do not place the MultiModem alongside computer discs, credit or travel cards, or other magnetic media. The information contained on discs or cards may be affected by the phone.
- The use of accessories not authorized by Multi-Tech or not compliant with Multi-Tech's accessory specifications may invalidate the warranty of the MultiModem.
- In the unlikely event of a fault in the MultiModem, contact Multi-Tech Technical Support.

# Package Contents

## Basic Package

- one modem
- two holding bridles (mounting brackets)
- one fused power cable

## Bundled Package

- all of the above, plus
- one RS232 15-to-9 pin cable
- one antenna
- four adhesive-backed rubber feet for table-top mounting
- one universal power supply with power cord
- one product CD
- one Quick Start Guide

## Parts Supplied by Service Provider (GSM only)

- Subscriber Identity Module (SIM) configuration chip The SIM contains information specific to your wireless account and its features. Only GSM units have SIMs; CDMA units do not.

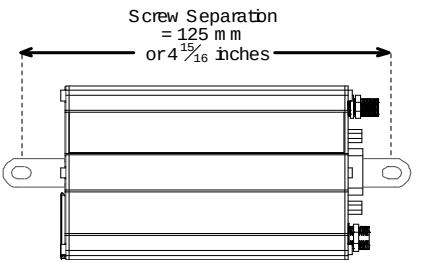
### Parts Supplied by User

- mounting screws (screw shaft diameter = .17" max.)
- antenna (Basic Package)

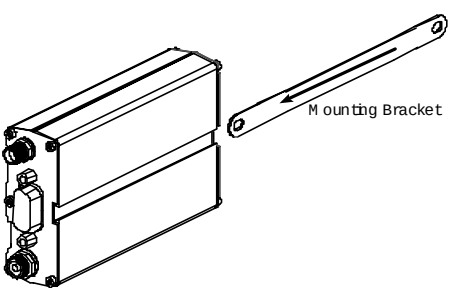
If the antenna shipped with the bundled version does not meet your application requirements (for size, shape, mounting style, etc.), you may supply an antenna yourself. The antenna used be the correct frequency and must be a style appropriate to the application. See the *User Guide* for antenna specifications.

## Attaching MultiModem to a Fixed Location

**1.** Typically, the MultiModem is mounted against a flat surface with two mounting screws. Drill the mounting holes at the desired location separated by 125mm (4 -15/16 inches) center-to-center.

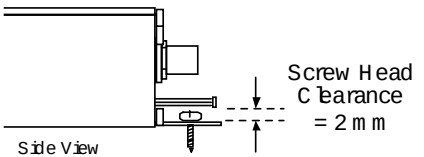



**2.** Slide the mounting brackets into the corresponding slots on the back side of the MultiModem chassis.




**3.** Attach the MultiModem to the surface with two mounting screws. Ensure the mounting screws have adequate

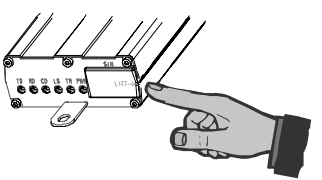
clearance under the RS232 cable. Maximum mounting screw-head thickness is 2mm.



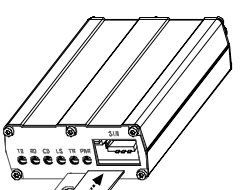

## Inserting the SIM Card into the Holder

The wireless MultiModem requires a SIM card (Subscriber Identity Module) to operate on a GSM network. To install the card, do the following:

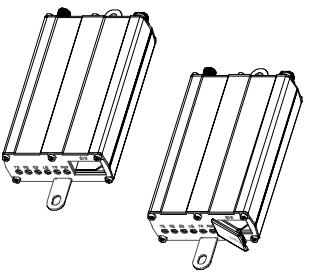
**1.** Using your fingernail or a small screwdriver, pry off the SIM cover.




**2.** Insert the SIM card into the holder.

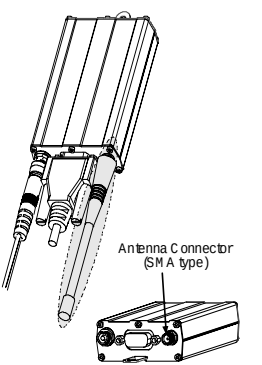


**3.** Verify that the SIM card fits into the holder properly and then replace the cover.



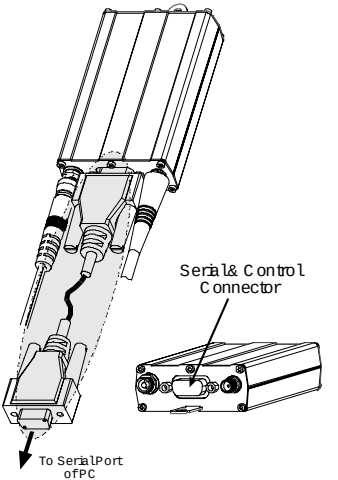
## Connecting the Antenna

Connect a suitable antenna to the SMA connector (see "Antenna/RF Specifications" in the *User Guide*).



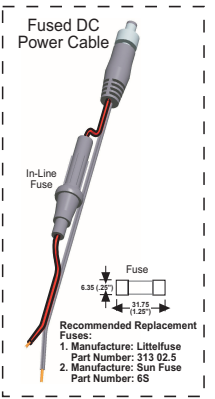
## Connecting the Serial Cable

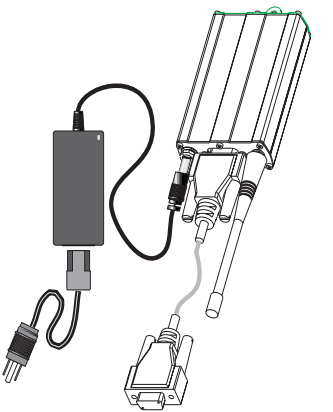
Connect both ends of the serial and control cable (15-pin Sub D connector on the modem end).



## Connecting the Power Supply Cable

**1.** Plug the power supply cable into the wireless MultiModem.



**2a.** ***For standard transformer power supply***.

- Connect the AC cord receptacle into the transformer block.
- Connect the AC cord plug into the mains power outlet.

**2b.** ***For optional direct-DC powering***.

- Connect the direct-DC power supply cable into the DC power source on the vehicle or machine in which you are mounting the MultiModem. Be sure the GND connection is correct.
- Connect red wire to + (positive) and black wire to – (negative).

*Note: Units shipped with the universal AC power supply are not suited for installation in hazardous locations.*

*Note: For automotive applications: according to the type of application, you can use permanent "+" or key-switched "+". Connect the power supply to its source (for example, in a mobile situation, to the vehicle's DC fuse/terminal block). Activate the DC power supply.*

## AT Commands

A complete set of AT command definitions can be found in the AT Command Reference Guides (one for GPRS and one for CDMA). These guides are available on the Multi-Tech web site or on the MultiModem CD.

## Phone Number for the Wireless Modem

- Every wireless modem will have its own unique phone number.
- The wireless modem's phone number may simply be told to the subscriber or be on the SIM or both. Wireless provider implementations may vary.

## Network Access

**For GSM-without-GPRS**, a circuit-switched data connection is used. The user can set up DUN to make a conventional V.32 modem connection to any terminating modem at the other end. The phone number specified in DUN can be one supplied by the wireless service provider or another phone number related to a different dialup modem service (e.g., a dialup modem service phone number from any commercial or private dialup network).

**For GSM-with-GPRS**, a single DUN number is generally used by all of a wireless provider's subscribers throughout its area of coverage (regional, nationwide, continental, etc.). Rather than being a literal phone directory number, as in conventional DUN, this is a code that gives the modem Internet access.

**For CDMA point to point data**, a circuit-switched data connection is used. The user can set up DUN to make a conventional V.32 modem connection to any terminating modem at the other end. The phone number specified in DUN can be one supplied by the wireless service provider or another phone number related to a different dialup modem service (e.g., a dialup modem service phone number from any commercial or private dialup network).

**For CDMA 1x data**, a single DUN number is generally used by all of a wireless provider's subscribers throughout its area of coverage (regional, nationwide, continental, etc.). Rather than being a literal phone directory number, as in conventional DUN, this is a code that gives the modem Internet access.

## Mobile PhoneTools

For initial configuration of your wireless device, Multi-Tech offers a Windows based mobile PhoneTools application. To load mobile PhoneTools, click on the mobile PhoneTools icon on the MultiModemCD and follow the on-screen prompts.

## Direct Modem Installation

To install the Wireless MultiModem directly into the computer's Windows OS so it is independent of the mobile Phonetools program, use the "Add Modem" command or equivalent for your OS. During this installation, you will need to browse to the MultiModem's INF file (using the "Have Disk" option in the installation process). This INF file is in the root directory of the MultiModem CD.

**Patents**

This device is covered by one or more of the following patents:
6,031,867; 6,012,113; 6,009,082; 5,905,794; 5,864,560; 5,815,567; 5,815,503; 5,812,534; 5,809,068; 5,790,532; 5,764,628; 5,764,627; 5,754,589; 5,724,356; 5,673,268; 5,673,257; 5,644,594; 5,628,030; 5,619,508; 5,617,423; 5,600,649; 5,592,586; 5,577,041; 5,574,725; 5,559,793; 5,546,448; 5,546,395; 5,535,204; 5,500,859; 5,471,470;

MultiTech® Systems

82001225L